

**Post-Course Test**

For use after Chapter 13

**Evaluate the expression when  $x = 3$ ,  $y = 5$ , and  $z = 6$ .**

1.  $3x - y$                       2.  $(y + z)^2 - x$                       3.  $\frac{2z - x}{3}$

**Find the sum, difference, product, or quotient.**

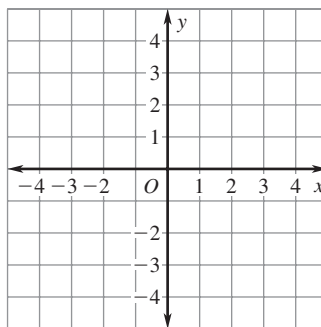
4.  $42 + (-19)$                       5.  $-28 - 41$                       6.  $-16 - (-35)$   
 7.  $14(-6)$                       8.  $\frac{-36}{-4}$                       9.  $\frac{296}{-8}$

**State the absolute value and the opposite of the number.**

10.  $-25$                       11.  $9$                       12.  $87$                       13.  $-33$

**Plot the point in the coordinate plane.****Describe the location of the point.**

14.  $A(-2, 3)$   
 15.  $B(1, 3)$   
 16.  $C(-4, -3)$   
 17.  $D(3, -1)$

**Identify the property that the statement illustrates.**

18.  $c + 0 = c$                       19.  $f(gh) = (fg)h$                       20.  $x + y = y + x$

**Evaluate the expression using the distributive property and mental math.**

21.  $5(34)$                       22.  $3(84)$                       23.  $8(7.3)$                       24.  $9(6.2)$

**Simplify the expression.**

25.  $26 + 3x - 19 + 24x$   
 26.  $-6(3t - 2) + 28$   
 27.  $7b + 4b + 17b$

**Write the verbal sentence as an equation. Then tell whether 7 is a solution of the equation.**

28. The difference of 14 and  $y$  is 21.  
 29. The product of  $z$  and  $-6$  is  $-42$ .

**Answers**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. See left.
15. See left.
16. See left.
17. See left.
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_
29. \_\_\_\_\_



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Solve the equation.

30.  $8n = -104$

31.  $h - 41 = -6$

32.  $-\frac{t}{5} = 15$

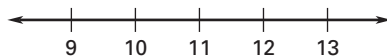
33.  $-3p - 7 = 5$

34.  $4(3 - 2x) = -44$

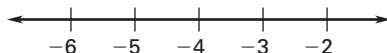
35.  $-8 = 8(4g + 3)$

Solve the inequality. Graph your solution.

36.  $x - 6 \geq 5$



37.  $-4b - 3 \leq 13$



Find the greatest common factor of the monomials.

38.  $6x, 9x$

39.  $5t, 15t^2$

40.  $7x^3z^4, 34x^5z^2$

Find the least common multiple of the monomials.

41.  $8t, 24t$

42.  $6x, 12x^3$

43.  $24r^3s^2, 15r^2s^6$

Find the product or quotient. Write your answer using only positive exponents.

44.  $u^4 \cdot u^9$

45.  $x^3 \cdot x^{-4}$

46.  $\frac{p^7}{p^2}$

47.  $\frac{t^{-6}}{t^3}$

Find the sum, difference, product, or quotient.

48.  $\frac{5}{7} + \left(-\frac{6}{7}\right)$

49.  $5\frac{3}{4} - 2\frac{2}{3}$

50.  $-1\frac{1}{5} \cdot \left(6\frac{1}{2}\right)$

51.  $-8\frac{1}{3} \div \left(-4\frac{1}{6}\right)$

Solve the equation or inequality by first clearing the fractions or the decimals.

52.  $\frac{1}{3}x - 4 < \frac{5}{6}$

53.  $-\frac{3}{8}x + \frac{1}{4} \geq \frac{7}{12}$

54.  $4.2x + 3.5 = 16.1$

55.  $8.5x - 6.97 = 38.08$

Solve the proportion.

56.  $\frac{7}{12} = \frac{49}{w}$

57.  $\frac{96}{b} = \frac{48}{51}$

58.  $\frac{9.2}{x} = \frac{2.3}{16}$

Answers

30. \_\_\_\_\_

31. \_\_\_\_\_

32. \_\_\_\_\_

33. \_\_\_\_\_

34. \_\_\_\_\_

35. \_\_\_\_\_

36. \_\_\_\_\_

See left.

37. \_\_\_\_\_

See left.

38. \_\_\_\_\_

39. \_\_\_\_\_

40. \_\_\_\_\_

41. \_\_\_\_\_

42. \_\_\_\_\_

43. \_\_\_\_\_

44. \_\_\_\_\_

45. \_\_\_\_\_

46. \_\_\_\_\_

47. \_\_\_\_\_

48. \_\_\_\_\_

49. \_\_\_\_\_

50. \_\_\_\_\_

51. \_\_\_\_\_

52. \_\_\_\_\_

53. \_\_\_\_\_

54. \_\_\_\_\_

55. \_\_\_\_\_

56. \_\_\_\_\_

57. \_\_\_\_\_

58. \_\_\_\_\_



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# Post-Course Test

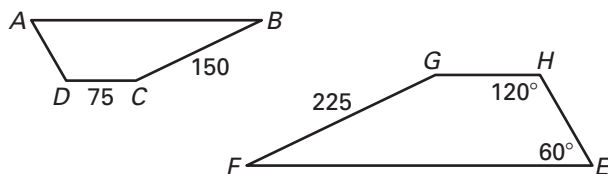
For use after Chapter 13

Given  $ABCD \sim EFGH$ , find the indicated measure.

59.  $m\angle A$

60.  $m\angle D$

61.  $GH$



62. Each letter in the word VACATION is written on a separate slip of paper and placed in a hat. A letter is chosen at random from the hat. What is the probability that the chosen letter is a vowel?

Use a proportion or a percent equation to answer the question.

63. What percent of 360 is 126?

64. 18.75 is 12.5% of what number?

Identify the percent change as an *increase* or a *decrease*. Then find the percent of change.

65. Original: 24  
New: 36

66. Original: 80  
New: 60

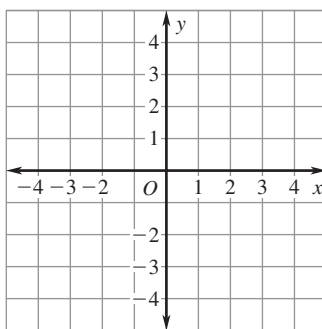
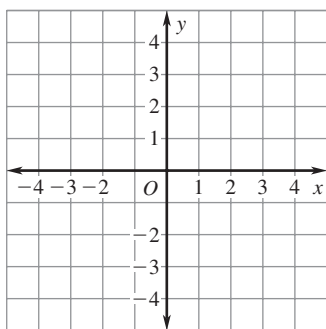
67. Original: 64  
New: 112

68. A spring sweater is on sale for 15% off the original price of \$35. What is the sale price of the sweater?

Graph the equation. Then tell whether the equation is a function.

69.  $x = -3$

70.  $y = -3x + 2$



Write an equation of a line through the given points.

71. (5, 10), (8, 19)

72. (-1, 10), (0, 3)

73. (-15, -3), (-12, -2)

74. (-4, -4), (4, -14)

Answers

59. \_\_\_\_\_

60. \_\_\_\_\_

61. \_\_\_\_\_

62. \_\_\_\_\_

63. \_\_\_\_\_

64. \_\_\_\_\_

65. \_\_\_\_\_

66. \_\_\_\_\_

67. \_\_\_\_\_

68. \_\_\_\_\_

69. See left.

70. See left.

71. \_\_\_\_\_

72. \_\_\_\_\_

73. \_\_\_\_\_

74. \_\_\_\_\_



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# Post-Course Test

For use after Chapter 13

Let  $f(x) = 5x + 4$  and  $g(x) = -2x + 1$ . Find the indicated value.

75.  $f(-2)$

76.  $g(4)$

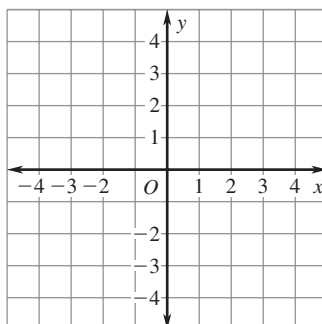
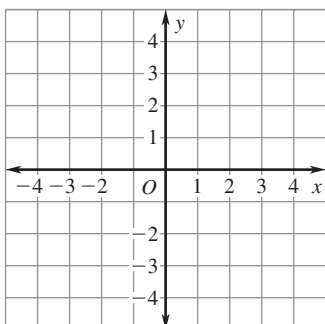
77.  $f(6) + g(-8)$

78.  $x$  when  $g(x) = 5$

Graph the inequality in a coordinate plane.

79.  $y > -1$

80.  $y \leq -x - 2$



Simplify the expression.

81.  $\sqrt{72}$

82.  $\sqrt{\frac{18}{49}}$

83.  $\sqrt{50b^2}$

84.  $\sqrt{\frac{9r^2}{121}}$

Determine whether the triangle with the given side lengths is a right triangle.

85. 9, 12, 15

86. 5, 12, 16

87. 9, 40, 41

88. 5, 6, 7

Find the midpoint of the segment with the given endpoints. Then find the distance between the points. Write your answer in simplest form.

89. (4, 5), (0, 7)

90. (3, 6), (-4, -2)

91. (0, -8), (2, 6)

92. The shortest leg of a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle has a length of 6. Find the length of the other leg and the hypotenuse. Write your answer in simplest form.

The angle measures of a polygon are given. Find the value of  $x$ .

93. Quadrilateral:  $x^\circ$ ,  $2x^\circ$ ,  $4x^\circ$ ,  $5x^\circ$

94. Triangle:  $2x^\circ$ ,  $5x^\circ$ ,  $(x + 20)^\circ$

Find the area of the figure with the given dimensions. Use 3.14 for  $\pi$ . Round to the nearest whole number.

95. Parallelogram:  $h = 6$  m,  $b = 4.5$  m

96. Circle:  $r = 19$  yd

## Answers

75. \_\_\_\_\_

76. \_\_\_\_\_

77. \_\_\_\_\_

78. \_\_\_\_\_

79. See left.

80. See left.

81. \_\_\_\_\_

82. \_\_\_\_\_

83. \_\_\_\_\_

84. \_\_\_\_\_

85. \_\_\_\_\_

86. \_\_\_\_\_

87. \_\_\_\_\_

88. \_\_\_\_\_

89. \_\_\_\_\_

90. \_\_\_\_\_

91. \_\_\_\_\_

92. \_\_\_\_\_

93. \_\_\_\_\_

94. \_\_\_\_\_

95. \_\_\_\_\_

96. \_\_\_\_\_



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**Find the surface area and the volume of the solid with the given dimensions. Use 3.14 for  $\pi$ . Round to the nearest whole number.**

**97.** Cylinder:  $r = 11$  in.,  $h = 15$  in.

**98.** Cone:  $r = 7$  cm,  $h = 12$  cm

**99.** Make an ordered stem-and-leaf plot and a box-and-whisker plot of the data: 56, 59, 65, 45, 68, 41, 66, 49, 51, 52.

## Answers

**97.** \_\_\_\_\_

\_\_\_\_\_

**98.** \_\_\_\_\_

\_\_\_\_\_

**99.** See left.

**100.** \_\_\_\_\_

**101.** \_\_\_\_\_

**102.** \_\_\_\_\_

**103.** \_\_\_\_\_

**104.** \_\_\_\_\_

**105.** \_\_\_\_\_

**106.** \_\_\_\_\_

**107.** \_\_\_\_\_

**108.** \_\_\_\_\_

**109.** \_\_\_\_\_

**110.** \_\_\_\_\_

**111.** \_\_\_\_\_

**112.** \_\_\_\_\_

**113.** \_\_\_\_\_

**114.** See left.

## Evaluate.

**100.**  ${}_5P_4$       **101.**  ${}_8C_2$       **102.**  ${}_7C_0$       **103.**  $4!$

**104.** A computer randomly generates a whole number from 1 to 25. Find the probability that the computer generates a multiple of 5.

**105.** A jar has 6 red marbles and 4 blue marbles. You randomly choose two marbles. Find the probability that both marbles are red.

## Find the sum, difference, or product.

**106.**  $(2x^2 + 4x - 5) + (-3x^2 + 6x + 1)$

**107.**  $(9x^2 - x + 2) - (4x^2 + 2x)$

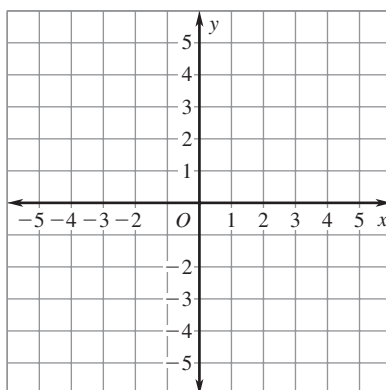
**108.**  $(-5x + 3)(7x - 6)$       **109.**  $3x(10x^3 - 4x^2 + 3)$

## Simplify the expression. Write your answer using positive exponents.

**110.**  $(ab)^4$       **111.**  $(-3y^2)^5$       **112.**  $(t^{-7})^4$       **113.**  $(x^{-6})^{-3}$

**114.** Make a table of values for  $\frac{1}{4}x^2 - 3$ . Then graph the function.

<b>x</b>	-6	-4	0	4	6
<b>y</b>					





Continued

# Post-Course Test

For use after Chapter 13

Tell whether the sequence is *arithmetic* or *geometric*. Then find the common difference or the common ratio, and write the next three terms.

115. 16, 28, 40, 52, ...

116. 1024, 512, 256, 128, ...

Tell whether the angles are *complementary*, *supplementary*, or *neither*.

117.  $m\angle 1 = 62^\circ$ ,  $m\angle 2 = 118^\circ$

118.  $m\angle 3 = 27^\circ$ ,  $m\angle 4 = 63^\circ$

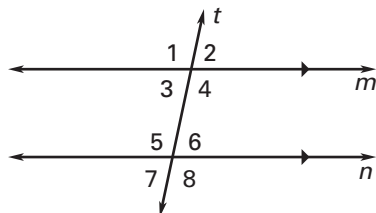
Tell whether the angles in the diagram are *vertical*, *corresponding*, *alternate interior*, or *alternate exterior* angles.

119.  $\angle 1$  and  $\angle 5$

120.  $\angle 5$  and  $\angle 8$

121.  $\angle 2$  and  $\angle 7$

122.  $\angle 3$  and  $\angle 6$

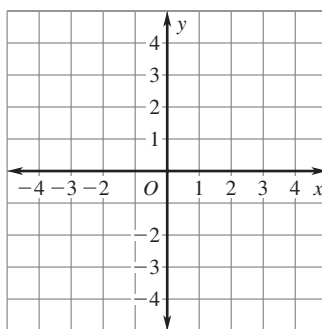
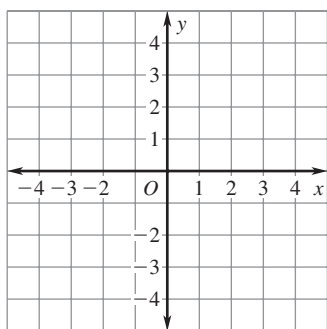


123. Find the measure of an exterior angle of a regular 18-gon.

Draw  $\triangle ABC$  with vertices  $A(-4, 1)$ ,  $B(-2, 4)$ , and  $C(0, -1)$ . Then find the coordinates of the vertices of the image after the specified transformation, and draw the image.

124.  $(x, y) \rightarrow (x + 4, y - 3)$

125. Reflection in the y-axis



## Answers

115. \_\_\_\_\_

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116. \_\_\_\_\_

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 \_\_\_\_\_

117. \_\_\_\_\_

118. \_\_\_\_\_

119. \_\_\_\_\_

120. \_\_\_\_\_

121. \_\_\_\_\_

122. \_\_\_\_\_

123. \_\_\_\_\_

124. \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

See left.

125. \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

See left.